

Population dynamics of mustard aphid, *Lipaphis erysimi* (kalt.) on mustard in relation to weather parameters

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The population dynamics of mustard aphid, *Lipaphis erysimi* (Kalt.) on mustard in relation to weather parameters was studied at Students' Instructional Farm of Narendra Deva University of Agriculture and Technology, Narendra Nagar (Kumarganj), Faizabad (U.P.) during the Rabi 2009-2010 and 2010-2011 crop season. This study will provide an opportunity to face the pest challenge by manipulating the manageable ecological parameters in the form of planting or harvesting time adjustment, varietal selection, correct time of pesticide application, etc. The natural appearance of mustard aphid population was started from 2nd week of January during the both year and reached its peak in 8th standard week with 219.07/10cm terminal shoot and 199.10/10cm terminal shoot during 2009-2010 and 2010-2011. Studies indicated that mustard aphid incidence was higher when maximum and minimum temperature ranged between 9.30 to 25.90°C and 8.20 to 25.20°C, relative humidity during hours 64.75 and 67.6 per cent, rainfall 0.4 and 1.4 mm and sunshine hours 7.50 and 7.20 during 2009-2010 and 2010-2011, respectively. Mustard aphid population was build up showed a non significant positive correlation with maximum temperature (°C), humidity, rainfall, sunshine and non-significant negative correlation with minimum temperature during both the year.

Key words : *Lipaphis erysimi*, Seasonal incidence, Population fluctuations, Correlation

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INTRODUCTION

Rapeseed mustard is one of the important oleiferous crops and constitute major source of edible oil for the human consumption and cake for animals. Every effort is being made to raise yield of this crop by adopting modern agriculture practices, such as the use high yielding varieties, heavy manuring and assured irrigation in order to meet the growing demands of oils. These composite efforts are, however, nullified if crop is not protected from the ravages of insect-pests. More than three dozen of insect-pests are known to be associated with rapeseed mustard crop in India (Backhetia and Sekhon, 1989). Among these, mustard aphid, *Lipaphis erysimi* (Kalt) is the most serious pest of this crop and is considered to be the limiting factor in the successful cultivation of mustard causing 35 to 73 per cent reduction in yield (Rai, 1961; Rohilla *et al.*, 1987). It is therefore, essential to keep this pest under control so as to reap profitable harvest. A number of synthetic insecticides have been recommended to combat this pest but without much success.

The ecological approach to the pest management

suggests to use pesticides only when and where necessary. Therefore, for ensuring an effective and economical management of this serious pest, the present studies were undertaken for studying its population fluctuations in relation to weather parameter. These studies will provide an opportunity to face the pest challenge by manipulating sowing time, varietals selection, correct timing of pesticidal application besides other management practices.

RESEARCH METHODOLOGY

Field experiments were conducted at Students' Instructional Farm, N.D. University of Agriculture and Technology, Kumarganj, Faizabad (U.P.) during the two consecutive years from 2009-2010 and 2010-2011. The Varuna (*B. juncea*) was sown on November 20 in both the study years, and the effect was studied on the incidence of aphid on this crop. The experiments were laid out in Randomized Block Design (RBD) with four replications, each in 4m x 3m plot size. The spacing between row to row and plant to plant was 30 cm and 15 cm, respectively. All the recommended agronomic